

1 **FITTING WITH FOUR-CONNECTORS**

2 **FOR ASSEMBLING BBQ GRILL TROLLEY (CART)**

3 **BACKGROUND OF THE INVENTION**

4 1. Field of Invention

5 This invention relates generally to a die-casting Zn-Al alloy fitting
6 comprising four connectors, two vertical directions and two horizontal
7 directions, and two channels with compressible plastic plate inserted on two
8 larger surfaces of each connector that can be used to simplify the assembly of
9 a stainless steel BBQ grill trolley. Eight fittings can connect rectangular
10 stainless steel tubes to assemble a trolley of a BBQ grill.

11 2. Description of the Prior Art

12 Stainless steel BBQ grill trolley or cart is composed of legs, base, door,
13 side panels, top panel and side shelves. In some cases it is assembled by
14 welding and it will cause delivery cost increase due to its large volume
15 especially if the grills are produced oversea. In other cases, it is assembled
16 using brackets and bolts but consumer needs a little skill and lot of time and
17 effort to assemble it. The present invention can greatly reduce the shipping
18 cost and heavily reduce the consumer's effort to assemble a BBQ grill.

19 **SUMMARY OF THE PRESENT INVENTION**

20 In accordance with the present invention, a die-casting Zn-Al alloy
21 fitting with four connectors is applied to join the legs of a trolley. Each
22 fitting can connect four rectangular stainless steel tubes in four different
23 directions. Using four fittings can preassemble the lower base and upper
24 stand of a trolley separately in production stage and consumers can easily
25 assemble the trolley by connecting the legs together with it.

1 The fitting is made of Zn-Al alloy by die-casting therefore; its dimension
2 can be very accurately controlled. There is a tolerance on inside dimension
3 of rectangular stainless steel tubes due to production process allowance.
4 Therefore the minimum inside dimension of the rectangular stainless steel is
5 used as the criterion for fitting's dimension. There is a clearance between
6 the fitting connector and the rectangular stainless steel tube in such situation.
7 In order to eliminate the gap between the rectangular tube and fitting two
8 channels on two larger side surfaces of each connector are formed with a
9 thick compressible plastic plate inserted into each channel to ensure the
10 tightness of connection.

11 **BRIEF DESCRIPTION OF THE DRAWINGS**

12 Fig. 1 is a perspective view of a trolley of a BBQ grill with
13 four-connectors fittings.

14 Fig. 2 is a perspective view of the four-connectors fitting.

15 Fig. 3 is a side view of the four-connectors fitting.

16 Fig. 4 is a front view of the four-connectors fitting.

17 Fig. 5 is a top view of the four-connectors fitting.

18 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

19 Referring to Figs. 1 and Fig. 2 rectangular stainless steel tubes 3, bottom
20 base, and side panels in accordance with the present invention comprise a
21 trolley of a BBQ grill. Eight fittings 1 are used to connect rectangular
22 stainless steel tubes 3 to form the frame of a trolley and the side panels,
23 bottom base, upper stand and doors can be assembled accordingly. The
24 fitting 1 with four connection parts 11 said connectors is designed specially
25 that only one type is required to assemble a trolley just turn the fitting 1

1 upside down and change its orientation for different corner connection.

2 The fitting **1** is made of Zn-Al alloy by die-casting. Each fitting
3 connects four rectangular stainless steel tubes **3** and eight fittings can be used
4 to assemble a trolley of a BBQ grill see Fig. 1 and Fig. 2. Two square tubes
5 **3** are connected vertically and two square tubes **3** are connected horizontally
6 for each fitting. The shape of the fitting **1** is shown in Fig. 3 to Fig. 5 and its
7 dimension can be different to suit different trolley size.

8 The inside dimension of rectangular stainless steel tubes **3** have tolerance
9 during mass production therefore the minimum inside dimension of
10 rectangular stainless steel tubes **3** is used as the outside dimension of the
11 extruding connectors **11**. Obviously, there is a clearance between
12 rectangular stainless steel tubes **3** and fitting connector **11** when they are
13 joined. In order to eliminate the clearance a special device is invented on the
14 fitting. On two larger side surfaces **111** of extruding connector **11** two
15 channels **112** with wider base and narrow opening are formed. A
16 compressible plastic plate **2** is inserted into each channel **112**. The thickness
17 of the plastic plate **2** is larger than the clearance existed between the tubes **3**
18 and the fitting connector **11**. When the rectangular stainless steel tubes **3**
19 connect to the fitting **1** it will compress the plastic plate **2** and tightly join with
20 the fitting **1**.

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